Gulf Cooperation Council

EDICT OF GOVERNMENT

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GSO 82 (1988) (English): INDUSTRIAL SAFETY AND HEALTH REGULATIONS LONGSHORING – PART 3: CARGO HANDLING

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INDUSTRIAL SAFETY AND HEALTH REGULATIONS
LONGSHORING – PART 3: CARGO HANDLING

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INDUSTRIAL SAFETY AND HEALTH REGULATIONS
LONGSHORING – PART 3: CARGO HANDLING

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CONTENTS

INDUSTRIAL SAFETY AND HEALTH REGULATIONS
LONGSHORING PART 3: CARGO HANDLING

1. SCOPE AND FIELD OF APPLICATION

This standard is concerned with the regulations required for the gear and procedure handling ship's cargo.

2. COMPLEMENTARY REFERENCES

2.1 GSO 76/1987 “Industrial Safety and Health Regulations - Longshoring - Part 1: General”.

2.2 GSO 218/1994 “Industrial Safety and Health Regulations - Electrical Part 2: Low Voltage”.

2.3 GSO 214/1994 “Industrial Safety and Health Regulations - Equipment – Materials Handling”.

3. DEFINITIONS

For the purpose of this standard, definitions specified in the complementary reference mentioned in item 2.1 shall apply.

4. SHIP'S CARGO HANDLING GEAR

4.1 General Requirements

4.1.1 Neither the safe working load as specified in the cargo gear certification papers, nor any safe working load marked on the booms, shall be exceeded. Any limitations imposed by the certificating authority shall be adhered to.

4.1.2 Any component of cargo handling gear, including tent gantlines and other associated rigging, which is visibly or otherwise deemed unsafe shall not be used until made safe.

4.1.3 The following limitations shall apply to the use of wire rope as a part of the ship's cargo handling gear:

4.1.3.1 An eye splice made in any wire rope shall have not less than three full tucks. However, this requirement shall not operate to preclude the use of another form of splice or connection which can be shown to be as efficient and which is not otherwise prohibited:

4.1.3.2 Except for eye splices in the ends of wires, each wire rope used in hoisting or lowering, in guying derricks, or as a topping lift, preventer, segment of a multipart preventer, or pendant, shall consist of one continuous piece without knot or splice.

4.1.3.3 Wire rope shall not be used for the ship's cargo gear if, in any length of 8 times the diameter, the total number of visible broken wires exceeds 10 percent of the total number of wires or if the rope shows other signs of excessive wear, corrosion or defect.

4.2 **Specific requirements**

Gear which does not comply with the following requirements shall not be used.

4.2.1 When preventers are used they shall be of sufficient strength for the intended purpose and secured to the head of the boom independent of working guys except when, in the case of cast fittings, the strength of the fitting exceeds the total strength of all lines secured to it. Any tails, fittings, or other means of making the preventers fast on deck shall provide strength equal to that of the preventer itself.

4.2.2 Wire rope clips or knots shall not be used to form eyes in, or to join sections of, preventer guys.

4.2.3 When used, chain topping lift stoppers shall be in good condition, equipped with fiber tails, and of a length to allow not fewer than three half-hitches in the chain.

4.2.4 When used, chain stoppers shall be shackled or otherwise secured in such a manner that their links are not bent by being passed around fittings. The point of attachment shall be of sufficient strength and so located that the stoppers are reasonably in line with the normal topping lift lead at the time the stopper is applied.

4.2.5 When used, patent stoppers of the clamp type shall be suited to the size of the rope used, clamps shall be in good condition and free of paint and dirt which would prevent them being drawn tight.

4.2.6 The end of the winch fall shall be secured to the drum by clamps, U-bolts, shackles, or some other equally strong method. Fiber rope fastenings shall not be used.

4.2.7 Winch falls shall not be used with fewer than three turns on the winch drum.

4.2.8 Eyes in the ends of wire rope cargo falls shall not be formed by knots and, in single part falls, shall not be formed by wire rope clips.

4.2.9 When the design of the winch permits, the fall shall be so wound on the drum that the control mechanism moves in the same direction as the load.

4.2.10 When employees are required to work in the bight formed by the heel block, a preventer of at least 19 mm diameter wire rope, rove reasonably sung and adequately secured, shall be rigged, or equally effective means shall be taken to hold the block and fall in the event that the heel block attachments should fail. Where physical limitations prohibit the fitting of a wire rope preventer of the required size or of other equally effective means, the maximum possible protection shall be provided.

4.2.11 If the heel block is not so rigged as to prevent its falling when not under strain, it shall be secured to prevent alternate raising and dropping of the block. However, this requirement shall not apply when the heel block is so located as to be at least 3 m above the deck when at its lowest point.

4.2.12 When used, portable coaming rollers, whether provided by the ship or by the employer, shall be secured by wire preventers in addition to the regular coaming clamps.

4.2.13 Cargo hooks shall be as close to the junction of the falls as the assembly permits, but in no case farther than 60 cm from it, except that this provision shall not apply when the construction of the vessel and the operation in progress are such that fall angles in exces of 120 degrees do not normally occur. Overhaul chains shall not be shortened by bolting or knotting.

4.3 Cargo winches

4.3.1 When moving parts of winches or other deck machinery present a hazard, they shall be guarded.

4.3.2 Winches shall not be used if control levers operate with excessive friction or play.

4.3.3 Double gear winches or other winches equipped with a clutch shall not be used unless a positive means of locking the gear shift is provided.

4.3.4 When changing gears on a two gear winch, there shall be no load other than the fall and cargo hook assembly on the winch.

4.3.5 Any defect or malfunction of winches shall be reported immediately to the officer in change of the vessel.

4.3.6 Temporary seats and shelters for winch drivers which create a hazard to the winchmen or other employees shall not be used.

4.3.7 Winch drivers shall not be permitted to use winch control extension levers unless they are provided by either the ship or the employer. Such levers shall be securely fastened with metal connections at the fulcrum and at the permanent control lever.

4.3.8 Steam winches

Means shall be taken to prevent escaping steam from obscuring any part of the decks or other work places or from otherwise hindering or injuring any employee.

4.3.9 Access shall be maintained to the steam valve between each winch and the deck steam line. If this valve is not operable with normal hand pressure, the winch shall not be used.

4.3.10 Extension control levers which tend to fall of their own weight shall be counter balanced.

4.3.11 When winches are left unattended, control levers shall be secured in the neutral position.

4.3.12 Electrical winches

When the electro-magnetic or other service brake is unable to hold the load, the winch shall not be used.

4.3.13 Winches shall not be used when one or more control points, either hoisting or lowering, is not operating properly. Employees shall not be permitted to tamper with or adjust electric control circuits.

4.3.14 When winches are left unattended, control levers shall be placed in the neutral position and, whenever possible, the power shall be shut off or control levers locked at the winch or the operating controls.

4.4 Rigging gear

4.4.1 When alternate positions for securing guys are provided, the guys shall be so placed as to produce a minimum force without permitting the boom to jack knife.

4.4.2 The head of the midship boom shall be spotted no farther outboard of the coaming than is necessary for control of the load.

4.4.3 Preventers

When preventers are used, the following shall apply:

4.4.3.1 Preventers shall be properly secured to suitable fittings, other than those to which the guys are secured, and shall be as nearly parallel to the guys as available fittings permit.

4.4.3.2 Unless the cleat is also a chock and the hauling part is led through the chock opening, the leads of preventers to cleats shall be such that the direction of the line pull of the preventer is as nearly as possible parallel to the plane of the surface on which the cleat is mounted.

4.4.3.3 Guys and associated preventers shall be adjusted so as to share the load as nearly equally as practicable where cargo operations are being conducted by burtoning. However, where guys are designed and intended for trimming purposes only and the preventer is intended to perform the function of the guy, the guy shall be left slack.

4.4.4 Cargo falls under load shall not be permitted to chafe on any standing or other running rigging. This shall not be construed to mean hatch coamings or other similar structural parts of the vessel.

4.4.5 Where a bull wire is taken to a gypsy head for the purpose of lowering or topping a boom, the bull wire shall be secured to the gypsy head by shackle or other equally strong method. Securing by fibre rope fastening will not be considered adequate.

4.4.6 When, in lowering or topping a boom, it is not possible to secure the bull wire to the gypsy head, or when the topping lift itself is taken to the gypsy head, not less than 5 turns shall be used.

4.4.7 When deck loads extend above the rail and there is less than 20 cm horizontal clearance between the edge of the deck load and the inside of the bulwark or rail, employees shall not be permitted to go overside unless adequate precautions are taken to prevent them from falling.

4.5 **Cranes**

Unless permanently guarded, the accessible areas within the swing radius of the outermost part of the body of a revolving crane shall be temporarily guarded by ropes or other suitable means during cargo operations, so as to prevent an employee being in a position to be caught between the body of the crane and fixed parts of the vessel or of the crane itself.

5. CARGO HANDLING GEAR AND EQUIPMENT OTHER THAN SHIP'S GEAR

5.1 General requirements

5.1.1 All gear and equipment provided by the employer shall be inspected by the employer or his authorized representative before each use and, when necessary, at intervals during its use, to ensure that it is safe. Any gear which is found upon such inspection to be visibly unsafe shall not be used until it is made safe.

5.1.2 All special stevedoring gear provided by the employer, the strength of which depends upon components other than commonly used stock items such as shackles, ropes or chains, shall be tested as a unit in the following manner before initially being put into use:

5.1.2.1 Gear intended to handle lifts up to and including 20 tons shall be tested to 25 percent in excess of its rated working load.

5.1.2.2 Gear intended to handle lifts over 20 tons but not exceeding 50 tons shall be tested to 5 tons in excess of its rated working load.

5.1.2.3 Gear intended to handle lifts over 50 tons shall be tested to 10 percent in excess of its rated working load.

5.1.2.4 The employer shall maintain a record of the dates and results of the tests with each unit of gear concerned clearly identifiable. The records shall be available for examination by representatives of the concerned bodies.

5.1.3 The rated working load of gear shall not be exceeded.

5.1.4 The weight shall be plainly marked on any article of stevedoring gear hoisted by ship's gear and weighing in excess of 900 kg.

5.2 Slings

5.2.1 Fiber and wire rope slings shall be used in compliance with the complementary reference mentioned in item 2.3.

5.2.2 Chain slings

Only chain recommended for slinging or hoisting by the manufacturer shall be used for hoisting purposes.

5.2.2.1 All sling chains, including end fastenings, shall be given a visual inspection before being used on the job. A thorough inspection of all chains in use shall be made every 3 months. Each chain shall bear an indication of the month in which it was thoroughly inspected. The thorough inspection shall include inspection for wear, defective welds, deformation and increase in length or stretch.

5.2.2.2 Interlink wear, not accompanied by stretch in excess of 5 percent, shall be noted and the chain removed from service when maximum allowable wear at any point of link, as indicated in Table 1.

Table 1

Maximum Allowable Wear at any Point of Link

Chain Size (mm)	Maximum Allowable Wear (mm)
6	1
10	2
13	3
16	4
19	4
22	4
25	5
29	6
32	6
35	7
38	8
44	9

5.2.2.3 Chain slings shall be removed from service when, due to stretch, the increase in length of a measured section exceeds 5 percent; when a link is bent, twisted or otherwise damaged; or when raised scarfs or defective welds appear.

5.2.2.4 All repairs to chains shall be made under qualified supervision. Links or portions of the chain found to be defective, as described in item 5.2.2.2, shall be replaced by links having proper dimensions and made of material similar to that of the chain. Before repaired chains are returned to service, they shall be proof tested to the proof test load recommended by the manufacturer.

5.3 **Shackles**

5.3.1 The safe working load of shackles shall be that recommended by the manufacturer provided that a safety factor of not less than 5 is maintained.

5.3.2 Screw pin shackles provided by the employer and used aloft, except in cargo hook assemblies, shall have their pins secured in an approved manner.

5.4 **Hooks other than hand hooks**

5.4.1 The manufacturer's recommendations shall be followed in determining the safe working loads of the various sizes and types of specific and identifiable hooks. All hooks for which no applicable manufacturer's recommendations are available,

shall be tested yearly to twice the intended safe working load before they are initially put into use. The employers shall maintain a record of the dates and results of such tests.

5.4.2 Loads shall be applied to the throat of the hook.

5.4.3 Hooks shall be inspected periodically to see if they have been bent by overloading. Bent or sprung hooks shall not be used.

5.4.4 Teeth of case hooks shall be kept in good condition.

5.4.5 Jaws of patent clamp type hooks shall be kept in safe condition so that they will grip plates securely.

5.5 **Pallets**

5.5.1 Pallets shall be of such material and construction and so maintained as to safely support and carry loads being handled on them. Fastenings of reusable pallets shall be bolts and nuts, drive screws (helically threaded nails), annular threaded nails or fastenings of equivalent strength.

5.5.2 Wing or lip type pallets hoisted by means of bar bridles shall have an overhanging wing or lip at least 75 mm long.

5.5.3 Loaded pallets which on visual examination do not meet the requirements of this paragraph, shall be placed on pallets meeting the requirements before being hoisted into or out of the vessel.

5.5.4 Bridles used to handle flush end or box type pallets shall be of such a design as to prevent them from becoming disengaged from the pallet under load.

5.6 **Chutes, gravity conveyors and rollers**

5.6.1 Chutes used in the manual handling of cargo shall be of length and strength for the usage and shall be kept free of splinters and sharp edges.

5.6.2 Chutes shall be equipped with sideboards of sufficient height to prevent cargo from falling off.

5.6.3 Chutes and gravity roller sections shall be firmly placed or secured to prevent displacement.

5.6.4 Gravity rollers shall be of sufficient strength for the weight of material which is placed upon them. Rollers shall be locked in position to prevent them from falling or jumping out of the frame.

5.6.5 Frames shall be kept free of burrs and sharp edges.

5.6.6 When necessary for safe operation, provision shall be made for braking objects at the delivery end of the roller or chute.

5.7 **Powered conveyors**

5.7.1 Readily accessible and clearly marked stop controls shall be provided for use in an emergency. Whenever the operation of any power conveyor requires personnel to work in the immediate vicinity of the conveyor, the conveyor controls shall be attended while the conveyor is in operation.

5.7.2 Electric motors and controls on grain trimmers shall be of the explosion-proof type approved, for use in hazardous locations, Class 2, Group G, specified in the complementary reference mentioned in item 2.2.

5.7.3 All conveyor and trimmer drives which create a hazard shall be adequately guarded.

5.7.4 Each grain trimmer shall have a control box located on the weather deck in close proximity to the spout feeding the trimmer.

5.7.5 Power cables between the deck control box and the grain trimmer shall be used only in continuous lengths without splice or tap between connections.

5.8 **Portable stowing winches**

5.8.1 Portable stowing winches shall be used only with the knowledge and consent of the officer in charge of the vessel.

5.8.2 Portable stowing winches used in connection with operations shall at all times be properly secured to prevent shifting.

5.8.3 When internal combustion powered stowing winches are located below the weather deck or in other enclosed spaces, the exhaust shall be led topside to open air and away from the hatch opening.

5.9 **Rain tents**

When using rain tents, lanyards shall be secured to padeyes or other fixed structures of the vessel which are strong enough or to objects which are heavy enough to withstand the breaking stress of all lanyards attached.

5.10 **Tools**

5.10.1 Employers shall not issue or permit the use of visibly unsafe tools.

5.10.2 Portable electric tools which are held in the hand shall be equipped with switches of a type which must be manually held in a closed position.

5.10.3 All portable, power-driven circular saws shall be equipped with guards above and below the base plate or shoe. The upper guard shall cover the saw to the depth of the teeth, except for the minimum arc required to permit the base to be tilted for level cuts. The lower guard shall cover the saw to the depth of the teeth, except for the minimum arc required to allow proper retraction and contact with the work. When the tool is withdrawn from the work, the lower guard shall automatically and instantly return to the covered position.

5.11 **Mechanically-powered vehicles used aboard vessels**

5.11.1 All automotive equipment shall be maintained in good working order and safety devices shall not be removed or made inoperative, except as otherwise provided.

5.11.2 Overhead guards for fork lift trucks.

5.11.2.1 Except what noted in item 5.11.2.5, fork lift trucks shall be equipped with overhead guards securely attached to the machines. The guards shall be of such design and construction as to protect the operator from boxes, cartons, packages, bagged material, and other similar individual items of cargo which may fall from the load being handled or from stowage.

5.11.2.2 The guard shall be of such construction that it does not interfere with good visibility, but openings in the top of the guard must not exceed 15 cm in one of the two dimensions, width or length. Larger openings may be permitted provided to opening is larger than the smallest unit of cargo that is likely to fall on the guard.

5.11.2.3 The guard shall be large enough to extend over the operator in all normal circumstances of truck operation, including forward tilt.

5.11.2.4 In fork lift trucks equipped with a single tilt cylinder, provision shall be made so that failure of this cylinder or associated parts will not cause the overhead guard to injure the operator.

5.11.2.5 The overhead guard may be removed only at times when the presence of such a guard would prevent the truck from entering working spaces, and only if the operator cannot be injured by low overhead obstructions.

5.11.3 Guards for bulk cargo-moving vehicles.

5.11.3.1 Every crawler type, driver operated, bulk cargo-moving vehicle shall be equipped with an operator's guard of such design and construction as to protect the operator, when seated, against injury from contact with projecting overheads.

5.11.3.2 Guards and their attachment points shall be so designed as to be able to withstand, without permanent deflection, a load applied horizontally at the operator's shoulder level equal to the drawbar pull of the machine.

5.11.3.3 Guards shall not be required when the vehicle is used in situations in which the possibility of the seated operator coming in contact with projecting overheads does not exist.

5.11.4 End platform guards.

5.11.4.1 Every truck operated from an end platform or pedal position shall be equipped with an operator's platform guard of such design that it permits rapid and unobstructed agress.

5.11.4.2 Guards shall be so designed as to be able to withstand, without excessive deflection, a load equal to the weight of the loaded machine.

5.11.5 Forks, fork extensions or other attachments shall be suitably secured to prevent unintentional disengagement.

5.11.6 Weights and loads

5.11.6.1 The vehicle weight, with and without removable counterweights, shall be clearly posted on all mechanically-powered vehicles which are lifted aboard vessels.

5.11.6.2 The rated capacity of every fork lift truck, with and without removable counterweights, shall be posted on the vehicle in such a manner as to be readily visible to the operator.

5.11.6.3 Loads in excess of the rated capacity shall not be lifted or carried by lift trucks.

5.11.6.4 If loads are lifted by two or more trucks working in unison, the total weight shall not exceed the combined safe lifting capacity of all the trucks.

5.11.7 Steering knobs, when furnished on vehicles where the driver is not in a sitting position, shall be of a mushroom type unless the steering mechanism is of a type

that prevents road reactions from causing the steering handwheel to spin. The steering knob shall be mounted within the periphery of the wheel.

5.11.8 Steering knobs or similar ancillary devices shall be prohibited on the steering wheels of trucks in which the driver is in a sitting position.

5.11.9 No load on a fork lift truck or industrial crane truck shall be suspended or swung over any employee.

5.11.10 When mechanically-powered vehicles are used, adequate provisions shall be made to ensure that the working surface can support the vehicle and load, and that hatch covers, truck plates, or other temporary surfaces cannot be dislodged by movement of the vehicle.

5.11.11 When mechanically-powered vehicles are left unattended, the controls shall be neutralized, power shut off, brakes set, and the forks, blade, or scoop shall be paced in the lowered position.

5.11.12 When lift trucks or other mechanically powered vehicles are being operated on open deck type barges, the edges of the barges shall be suitably guarded by railings, sideboards timbers or other means sufficient to prevent vehicles from rolling overboard. When operated on covered lighters where door openings other than those being used are left open, adequate means shall be taken as necessary to prevent vehicles from rolling overboard through such openings.

5.12 **Cranes and derricks other than vessel's gear**

5.12.1 The following requirements shall be met in the use of cranes, whether hoisted aboard a vessel for use thereon or used to service a vessel from the dock, shore, or another vessel, and in the use of any other crane or derrick not a part of a vessel's permanent equipment, but used in longshoring operations:

5.12.1.1 The crane weight shall be posted on all mobile cranes hoisted aboard vessels for temporary use thereon.

5.12.1.2 All types of cranes shall be equipped with a durable rating chart visible to the operator, covering the complete range of the manufacturer's (or design) capacity ratings and for which they are certificated, where required. The rating chart shall include all operating radii for all permissible boom lengths and jib lengths as applicable, with the without outriggers which may be fited, and alternate ratings with optional equipment affecting such ratings. Necessary precautions or warnings shall be included. Operating controls shall be marked, or an explanation posted, at the operator's position to indicate functions.

5.12.1.3 A boom angle or radius indicator shall be fitted where applicable.

5.12.1.4 All shore-based derricks shall be clearly marked to indicate all applicable capacity ratings, based on manufacturer's (or design) data for which certificated. Such ratings, and any necessary precautions or warnings shall be visible to the operator. Operating controls shall be marked, or an explanation posted at the operator's position to indicate functions.

5.12.1.5 No counterweights in excess of manufacturer's (or design) specifications shall be fitted. All equipment shall be used in accordance with manufacturer's (or design) specifications and recommendations.

5.12.1.6 No crane or derrick shall be used where a visible defect affecting safety exits.

5.12.1.7 Unless exempted by the provisions of item 5.12.1.15 every crane used to load or discharge cargo into or out of a vessel shall be fitted with a load indicating device or alternative device in proper working condition which shall meet the following criteria:

5.12.1.8 The type or model of any load indicating device which is used may be such as to provide (a) a direct indication in the cab of actual weight hoisted or a means of determining this by reference to crane ratings posted and visible to the operator, except that the use of a dynamometer or simple scale alone will not meet this requirement; or (b) an automatic weight-movement device or computer providing indications in the cab according to the radius and load at the moment; or alternatively (c) a device may be used which shall prevent an overload condition.

5.12.1.9 Accuracy of the load indicating device, weight-movement device, or overload protection device shall be such that any indicated load (or limit), including the sum of actual weight hoisted and additional equipment or "add ons" such as slings, sensors, blocks, etc., is within the range from no less than 95 percent of the actual true total load (5 percent overload) to 110 percent of the actual true total load (10 percent underload). Such accuracy shall be required over the range of the daily operating variables to be expected under the conditions of use.

5.12.1.10 The device shall permit the operator to determine before making any lift that the indicating or substitute system is operative. In the alternative, if the device is not so mounted or attached and does not include such means of checking, it shall be certified by the manufacturer to remain operable within the limits stated in item 5.12.1.9, for a specific period of time. Check for accuracy, using known values of load, shall be performed at the time of every certification survey and at such additional times as may be recommended by the manufacturer.

5.12.1.11 When the load indicating device or alternative system is so arranged in the supporting system (crane structure) that its failure could cause the load to be dropped, its strength shall not be the limiting factor of the supporting system (crane structure).

5.12.1.12 Markings shall be conspicuously placed giving (a) units of measure in kilograms, (b) capacity of the indicating system, (c) operating instructions and precautions shall similarly be provided in the case of systems utilizing indications other than actual weights. If the system used provides no readout, but is such as to automatically cease crane operation when the rated load limit under any specific condition of use is reached, marking shall be provided giving the make and model of device installed, a description of what it does, how it is operated, and any necessary precautions regarding the system. All weight indications, other types of loading indications, and other data required shall be readily visible to the operator.

5.12.1.13 All load indicating devices shall be operative over the full operating radius. Overall accuracy shall be based on actual applied load and not on full scale (fully capacity) load. For example, if accuracy of the load indicating device is based on full scale load and the device is arbitrarily set at plus or minus 10 percent, it would accept a reading between 90,000 and 110,000 kg, at full capacity of a machine with 100,000 kg, maximum rating, but would also allow a reading between zero

and 20,000 kg, at that outreach (radius) at which the rating would be 10,000 kg, capacity - an unacceptable figure. If, however, accuracy is based on actual applied load under the same conditions, the acceptable range would remain the same with the 100,000 kg, load but becomes a figure between 9,000 and 11,000 kg, a much different and acceptable condition, at the 10,000 kg load.

5.12.1.14 When the device uses the radius as a factor in its use of in its operating indications, the indicated radius (which may be in meters, or degrees of boom angle, depending on the system used) shall be a figure which is within the range of a figure no greater than 110 percent of the actual radius to a figure which is no less than 97 percent of the actual (true) radius. When radius is presented in degrees, and meters are required for necessary determinations, a conversion chart shall be provided.

5.12.1.15 The load indicating device requirements of items 5.12.1.13 and 5.12.1.14, do not apply to a crane (a) of trolley equipped bridge type while handling containers known to be and identified as empty, or loaded, and in either case in compliance with the provisions of item 6.5.2; or while hoisting other lifts by means of a lifting beam supplied by the crane manufacturer for the purpose and in all cases within the crane rating; (b) while handling bulk commodities or cargoes by means of clamshell bucket or magnet; (c) while used to handle or hold hoses in connection with transfer of bulk liquids or other hose handled products; or (d) while the crane is used exclusively to handle cargo or equipment the total actual gross weight which is known by means of marking of the unit or units hoisted, when such total actual gross weight never exceeds 5000 kg, and when 5000 kg, is less than the rated capacity of the crane and the maximum outreach that is possible under the conditions of use at the time.

5.12.1.16 Accessible areas within the swing radius of the outermost part of the body of a revolving crane shall be temporarily guarded by ropes or other suitable means during cargo operations, so as to prevent an employee being in a position to be caught between the body of the crane and fixed parts of the vessel or of the crane itself.

5.13 Notifying ship's officer before using certain equipment.

5.13.1 The employer shall notify the officer in charge of the vessel before bringing aboard ship internal combustion or electric powered tools, equipment or vehicles.

5.13.2 The employer shall also notify the officer in charge of the vessel before using the ship's electric power for the operation of any of his electric tools or equipment.

5.14 Grounding

5.14.1 The frames of portable electric equipment and tools, except double insulated tools, shall be grounded either through a third wire in the cable containing the circuit conductors or through a separate wire which is grounded at the source of the current.

5.14.2 Grounding circuits, other than by means of the structure of the vessel on which the equipment is being used, shall be checked to ensure that the circuit between the ground and the grounded power conductor has low resistance enough to permit

sufficient current to flow to cause the fuse or circuit breaker to interrupt the current.

6. CARGO HANDLING

6.1 Slinging

6.1.1 Drafts shall be safely slung before being hoisted. Loose dunnage or debris hanging or protruding from loads shall be removed.

6.1.2 Cargo handling bridles, such as pallet bridles, which are to remain attached to the hoisting gear while hoisting successive drafts, shall be attached by shackles, or other positive means to prevent them from becoming accidentally disengaged from the cargo hook.

6.1.3 Drafts of lumber, pipe, dunnage and other pieces, the top layer of which is not bound by the sling, shall be slung in such a manner as to prevent sliders. Double slings shall be used on unstrapped dunnage, except when it is impractical because of the size of hatch or deep tank openings.

6.1.4 Case hooks shall not be used for handling cases into or out of the vessel, unless the cases are specifically designed to be handled by this means.

6.1.5 Bales of cotton, wool, cork, wool pulp, gunny bags or other similar articles shall not be hoisted into or out of the vessel by their straps, unless the straps are specified as being of sufficient strength to support the weight of the bale, and two hooks are used with each in a separate strap.

6.1.6 Loads requiring continuous manual guidance while in motion shall be provided with tag lines.

6.1.7 No draft shall be hoisted unless the winch or crane operators can clearly see the draft it self or see the signals of any signalman associated with the operation.

6.2 Building drafts

6.2.1 Drafts shall be so built or other means shall be used so that cargo will not fall from the draft.

6.2.2 Hand loaded buckets of tubs used in handling bulk cargo shall not be loaded above their rims.

6.3 Stowed cargo, tiering and breaking down

6.3.1 When necessary, cargo shall be secured or blocked to prevent its shifting or falling.

6.3.2 In breaking down, precautions shall be taken to prevent the remaining cargo from falling

6.3.3 Employees trimming bulk cargo shall be checked in and out by the foreman. Before securing any reefer compartment, a check shall be made to ensure that no employee remains inside. Frequent checks shall be made to ensure the safety of any employee working alone in a tank or cargo compartment.

6.4 Bulling cargo

6.4.1 Bulling cargo shall be done with the bull line led directly from the heel block or bulling may be done from the head of the boom when the nature of the cargo and the surface over which it is dragged are such as to avoid stalling the load and when the winch does not have sufficient strength to overload the boom with the purchase used.

6.4.2 Snatch blocks shall be used to provide a fair lead for the bull line when necessary to avoid dragging of the bull line against coamings and obstructions.

6.4.3 Falls led from cargo booms of vessels shall not be used to move scows, lighters or railroad cars.

6.4.4 Snatch blocks shall not be used with the point of the hook resting on the flange of a beam, but shall be hung from padeyes, straps or beam clamps. Snatch blocks or straps shall not be made fast to batten cleats or other insecure fittings.

6.4.5 Beam or frame clamps shall be so secured to the beam as to minimize the possibility of their slipping, falling or being pulled from the beam.

6.5 **Containerized cargo**

6.5.1 On every cargo container there shall be permanently marked: (1) the weight of the container when empty; (2) the maximum cargo weight that the container is intended and designed by its manufacturer to carry; and (3) the sum of these two weights.

6.5.2 No container shall be loaded aboard or discharged from any vessel by means of hoisting by ship's cargo handling gear or by shore crane or derrick unless the following conditions have been met:

6.5.2.1 In the case of an empty container, it shall be ascertained from the carrier that such is the case, and the container shall be identified before loading or discharge either by marking the container or marking the cargo stowage plans, by both means or otherwise, in such manner that every supervisor and foreman on the site and in charge of loading or discharging, and/or every crane or other hoisting equipment operator and signalman shall know that such container is empty.

6.5.2.2 In the case of a loaded container: the actual gross weight shall be plainly marked on the container so as to be visible to the crane or other hoisting equipment operator or signalman, and/or to every supervisor and foreman on the site and in charge of loading or discharging; or the cargo stowage plan or equivalent permanently recorded display serving the same purpose shall be provided to the crane or other hoisting equipment operator and signalman and to every supervisor and foreman on the site and in charge of loading or discharging, and contain the actual gross weight, the exact stowage position, and the serial number or other positive identification of that specific container.

6.5.2.3 Every outbound loaded container received at a marine terminal ready to load aboard a vessel without further consolidation or loading shall be weighed to obtain the actual gross weight, either at the terminal or elsewhere before loading aboard a vessel. The open type vehicle carrying container and those built specifically and used solely for the carriage of compressed gases are excepted from this item and from items 6.5.2.4 and 6.5.2.5.

6.5.2.4 When container weighing scales are located at a marine terminal, any outboard container with a load consolidated at that terminal shall be weighed to obtain an actual gross weight before loading aboard a vessel.

6.5.2.5 When there are no container weighing scales located at a marine terminal at which outboard containers are loaded with cargo, or where container loads are completed or consolidated there or elsewhere, and no weighing facility is available and located in a reasonably accessible location, the actual gross weight may be calculated, providing that accurate weights of all content are known and a list of same, including the empty container weight, is totaled and posted on the container in a conspicuous place with identification of the source and date of calculation. Such list of contents may refer to cartons, cases, or other means of packaging but need not specifically identify the commodity or commodities involved except as otherwise required by law. Container weights so arrived at shall be subject to random sample weight checks at the nearest weighing facility. In cases where such weight checks or experience otherwise indicated consistently inaccurate weights arrived at by this means, the weight of containers so calculated at the source from which the inaccurate weights originated may no longer be recognized as true gross weights, in which case such containers may not be loaded aboard a vessel until actual gross weights have been obtained by weighing.

6.5.2.6 In the case of loaded inbound containers from foreign ports, they shall, if they have not been weighed, have the calculated weight posted in the manner prescribed by item 6.5.2.5. All loaded inbound containers from foreign ports shall be subject to random sample weight checks at a time satisfactory to the concerned authorities, which may be at any time up to unloading the contents of the container at the terminal or until the container is delivered unopened to the land carrier. When such checks indicate a pattern of significant and containuing inaccuracy or when the provisions of item 6.5.2.7 are not met, such suitable means as are acceptable to the concerned authorities, to protect the safety of the workers involved shall be taken during discharge to assure safety and such means shall be continued until these authorities are satisfied by experience that correct weights will be furnished.

6.5.2.7 The identification and documentation provision of items 6.5.2.1 and 6.5.2.2 shall apply to containers originating from foreign ports.

6.5.3 No container shall be hoisted if its actual gross weight exceeds the weight marked as required in item 6.5.1(3), or if it exceeds the capacity of the crane or other hoisting device intended for use, under the conditions in which said crane or other hoisting device is used. All hoisting of containers shall be by means which will safely do so without probable damage to the container, and using the lifting fittings provided.

6.5.4 All outbound containers shall be inspected before loading for any visible defects in structural members and fittings which would render their handling unsafe in loading. To the extent it is practicable, inbound containers shall be similarly inspected before discharge. Any outbound container found to have such a defect shall not be loaded unless the defect is first corrected. Any inbound container found to have such a defect shall either be discharged by special means to insure safety or shall be emptied before discharge.

6.5.5 The term “Container” means a reusable cargo container of rigid construction and rectangular configuration, intended to contain one or more articles of cargo or bulk commodities for shipment aboard a vessel, and capable of utilization for this purpose by one or more other modes of transport without intermediate reloading. The term includes completely enclosed units, open top units, half or other fractional height units, units incorporating liquid or gas tanks, and any other variations serving the container system, demountable or with attached wheels. The term, however, does not include cylinders, drums, creates, cases, cartons, packages, sacks unitized loads or any of the other forms of packaging.

6.5.6 No container shall be loaded aboard or discharged unless all container openings, doors, and valves are properly secured.

6.6 **Hazardous cargo**

6.6.1 Prior to the start of cargo handling operations a responsible representative of the employer shall ascertain from labels on the cargo, from the dangerous cargo manifest, or from other shipping documents, what hazardous cargoes, if any, are to be handled and the general nature of the hazard. He shall inform employees of the general nature of the hazard, the importance to the employees of preventing damage to the cargo, and the special precautions to be taken. The responsible representative of the employer aboard the vessel shall instruct the employees to notify him of any leaks or spills.

6.6.2 Drafts of cargo ascertained by the employer to be hazardous shall be so slung and secured that neither the draft nor the individual packages can fall as a result of tipping the draft or slacking the support gear.